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ABSTRACT

A first-approximation response to the question "What scope is apt for a primary school communication skills program?" is provided. It is suggested that this question should be answered within the framework of a response to a second question, "Where is the template for the primary-level educational operation occurring at future time x?" Four tables are presented. Table one lists the instructional time assumed available to a possible comprehensive communication skills program in 1976-1977. Table two lists possible instructional unit notations for the communication skills blocks of table one. Table three lists the names of skills complexes for a comprehensive communication skills program. The following skills complexes are included: word-sentence orthographic skills, word-sentence meaning skills, multisentence meaning skills, transmission skills, interactive skills, and understanding and evaluating the media. Table four presents an outline of a comprehensive communication skills program by complex, cluster, and skill. (Author/TS)

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# SOUTHWEST REGIONAL LABORATORY TECHNICAL MEMORANDUM

DATE: May 3, 1971

NO: TM-1-71-6

## ON THE DOMAIN AND CONTEXT OF A COMPREHENSIVE COMMUNICATION SKILLS PROGRAM

Joseph F. Follettie

ABSTRACT

A first-approximation response to the question "What scope is apt for a primary schools Communication Skills program?" is provided. It is suggested that this question should be answered within the framework of a response to a second question, "Where is the template for the primary-level educational operation occurring at Future Time X?" A preliminary sketch of the form that an answer to the second question might take is presented. Finally, it is argued that while one can do little at the moment concerning real ignorance, it is counter-productive to feign ignorance concerning one's program domain. The implied advice is followed.

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# ON THE DOMAIN AND CONTEXT OF A COMPREHENSIVE COMMUNICATION SKILLS PROGRAM

What scope is apt for a primary schools Communication Skills program? No one is empowered to answer this question with authority, nor is anyone apparently armed with the pertinent information required to provide a definitive answer for the years immediately ahead. Yet the question appears a proper one for educational R&D. That none may be adequately credentialled to answer the question well at this time need not stand in the way of formulating a first-approximation response. Remarks that follow hypothesize the form that a definitive response might take. These remarks are offered on the view that preliminary responses act to break the inertia surrounding large issues of the sort addressed. If so, then perhaps the paper will stimulate responses upon which a more-definitive answer can be constructed.

Answers to unbounded general questions tend not to be very informative. It goes without saying that we are not talking about the primary schools of Mars or Mongolia, but of the United States. Neither is the reference to primary schools of 1910, nor (since these remarks occur in an educational R&D setting) to the contemporary scene. Let us consider the primary schools in the United States of 1976 as the reference. Where is the template for 1976 primary education? This second question--one of context--is perhaps even larger and slipperier than the first. The second question will be answered only perfunctorily, consonant with providing preliminary domain specification for a comprehensive Communication Skills program.

More so perhaps than any other social institution, educational R&D is charged to discover how to make education more effective and cost-return efficient and to transform these discoveries into educational practice. Most would prophesy that the primary education operation will be somewhat differently configured in 1976 than it is in 1971. Any such prophesy in an educational R&D setting is intended to be self-fulfilling in that the prophetic act, when based on the institutional charge just described, must lead to responses that culminate in redesigned components of the educational operation. Hence, we can expect to see a somewhat different educational operation in 1976 than is evident in 1971. Certain instructional goals and programs will have been redesigned. Instructional evaluation rationale and routines will have been redesigned. Educational practice will be predicated on a somewhat redesigned educational plant and related administrative routines that better exploit redesigned goals, programs, and evaluation routines.

At best, the primary education operation of 1976 can be expected to exploit those current doctrinal and related hunches concerning an optimal instructional system that promise to be cost-feasible and technologically feasible within five years. The operation would then insure levels of instructional effectiveness and efficiency that contemporary doctrinal views (cf, Goodlad & Klein, 1970; Maccoby & Zellner, 1970) imply can be achieved.

It appears tenable that any educational R&D effort to reach such an objective entails making the child's progress through instruction a strict consequence of prior achievement in the classroom. This is no small break with past doctrine and present practice. Making progress a strict consequence of prior achievement implies a variety of educational R&D responses, each calculated to some degree to transform the educational operation. The following are illustrative, although probably not exhaustive, of the implications of the artfully simple but technically elegant view that progress should be a strict consequence of prior achievement.

1. Instructional evaluation. The view implies that instructional evaluation will be as intensive and extensive as is needed to insure the generation of apt, sensitive, timely data on the child's proficiency.

2. Personalization of evaluation. The view implies that instructional evaluation will be personalized, with instructional management decisions contingent on performance on apt criterion-referenced achievement tests.

3. Instructional pace. The contingent nature of instructional advancement implies that the pace of instruction should be personalized to a degree.

4. Instructional practice. Personalization of evaluation and instructional pace give rise to a fourth implication--that of personalized instructional practice under automated and/or tutorial control. Exploiting this implication entails adopting a conceptual framework that permits (and probably entails) a somewhat redesigned classroom and classroom routine.

The foregoing comments are consonant with the view that the propaedeutic key to significant advances in educational effectiveness and cost-return efficiency is evaluation. Making progress a strict consequence of prior achievement entails throwing out the prevailing practice "Advance in synchrony" and the pseudoevaluative practice of norm-referenced grading, which tends to reference "measurement" to an "intelligence trait." One prediction for the 1976 educational operation, then, is that norm-referenced grading will give way to the training and measurement of better-specified (and hence more clearly apt) skills. For what you do is what you get.[1]

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[1] The prognosticator Orwell (G., 1949) could not be sure of his calibration of events to time; neither can we. If, as most believe, man is a good deal more than vestigally reasonable, then it is inevitable that a whole system of changes underlying replacement of normative grading will emerge. There is little point in quibbling over the exact date on which this entirely-sane changeover will characterize the educational operation.

One step toward apt evaluation involves abandoning or significantly modifying certain assumptions of classical psychometrics as the theoretical framework for instructional evaluation. Certain investigators (e.g., Kriewall, 1969; Hively, et al., 1968; Bormuth, 1970) have made preliminary contributions toward modifying certain classical psychometric assumptions sufficiently to yield an apt rationale for evaluating instructional effects under criterion-referenced evaluation conditions. In consequence of these and other efforts, an apt measurement technology is in sight. However, such efforts will risk being unduly abstract and nonexploitable unless referenced specifically to skills domains of interest.

Hence, the key to projecting the 1976 classroom fits tongue-in-groove with domain specification for a comprehensive Communication Skills program. Independently-reached answers to the domain and context questions posed earlier should have significance beyond the dominion of the other question of the pair. However, the quality and aptness of the answer to either of these questions is bound to improve when the questions are addressed together. Thus, a developing view of apt evaluation should act to clarify how the skills of interest will be defined. Reciprocally, the item universe characteristics for the skills thus defined can be made to insure the development of an evaluation rationale that is entirely apt to an instructional program of significant scope.

The structure thus far provided entails abandoning the instructional year per se as a useful concept for monitoring instruction. It does not follow that we can get along well without an instructional unit which references to students as consumers of instructional time (nor that we need forego summer vacations). We substitute instructional level for instructional year. The instructional level time-references instruction to a student population through use of a statistical concept of mean performance.[2]

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The changeover is long overdue. If to prophesy in an educational R&D setting is to register intent, then it is possible that the necessary redesign of components of the educational operation could be completed in time to implement apt evaluation prior to the start of the 1976-77 school year (assuming that the school year continues September-June).

2 Whatever the magnitude of an element of instruction, its instructional time value would reflect a view of the time required to reach proficiency levels specified for that element under mean performance conditions. Initial such views would be hypotheses. Later views would constitute empirically-based calibrations. The concept of mean performance does not entail a particular child or particular group of children. It does not assume that a given child will consistently perform at the same rate across a sequence of instructional units addressing a given skills complex. Nor does it assume that a given child will consistently perform at the same rate across a range of skills complexes of interest. Rather, the concept provides: a) a statistical baseline to which efforts to personalize instruction can reference and b) a unit of coverage against which program magnitude can be formulated. Rate in this sense is not a new name for a midmost individual defined on general intelligence.

SKILLS, PROFICIENCY, & INSTRUCTIONAL TIME

Consider a Communication Skills program (CSP) which is multilevel. A level of program will be taken as the time devoted to securing level-referenced magnitudes of program skills during one academic year consisting of approximately 180 instructional days when rate of acquisition is statistically defined. If all students performed at the same rate under all conditions, then the instructional time value for a given level of a given program would predict instructional time expenditures for all students. Since students do not operate that way, we require the mean performance concept for purposes of structuring domain realistically. Without it, domain would be at best poorly-bounded. In consequence, an educational R&D effort referencing to a comprehensive CSP for the primary schools might then attempt to deal with communication in ultimate terms--that is, to pursue infinity.

Given the convention that a level of instruction is an academic year of instruction referenced to specified types and levels of skill obtained under mean performance conditions, then we may relabel the primary grades K-6 as primary levels 1-7. In consequence, CS Level 1 (or CS-1) refers to all CS instruction given during a kindergarten year; CS-2, to all CS instruction given during the 1st grade, etc.[3]

The length of an instructional day will be taken as ranging from approximately 7 30-minute periods during a first primary year (kindergarten) to approximately 11 such periods during a seventh primary year (6th grade). A block of instructional time will be taken to consist of 180 30-minute periods, referenced to specified types and levels of skill obtained under mean performance conditions. The periods of a block might either be scheduled one per instructional day or more flexibly, depending on instructional characteristics and performance requirements. Primary education will be taken to consist of approximately 65 blocks of instructional time, spread over seven levels or years.

Table 1 reflects amounts of instructional time that will be assumed available for administering comprehensive CS instruction during a 1976-77 school year. These are top-of-the-head values. One might interpret Table 1 values as asserting that a comprehensive CSP could hope to command such resources of primary education--30% of its instructional time--only if able to make good use of them. Assumed instructional

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[3] Entry into primary education currently is set predominantly on a chronological age basis. Perhaps entry should be made more flexible. That possibility excepted, there is nothing in the present scheme for distributing children across grade levels that cannot either be lived with or worked around. That is, age-grading practices per se do not stand in the way of designing and implementing a more effective educational operation.

time eventually will act to bound extent of a CSP. For preliminary purposes, it suffices to note that program scope will be bounded in part by instructional time resources and that the pursuit of a reasonable scope and depth of program should go hand in hand with the pursuit of a reasonable bound for instructional time.

Table 1.

Instructional Time Assumed Available to a Comprehensive CSP in 1976-77

| Primary Year | Instructional Blocks | Percent of Total Time |
|---|---|---|
| 1st | 2 | 30 |
| 2nd | 3 | 40 |
| 3rd | 4 | 45 |
| 4th | 4 | 40 |
| 5th | 3 | 30 |
| 6th | 3 | 30 |
| 7th | 2 | 20 |
| 1st-7th | 21 | 30 |

The instructional unit will encompass types and levels (or increments) of skills that mean performance yields when referenced to 18 30-minute periods. It follows that a block of instructional time is a resource into which 10 instructional units can be scheduled. Thus, the instructional blocks enumerated and levelled in Table 1 are consonant with administering 210 units of comprehensive CS instruction, predicated on mean rates of acquisition, during the primary years. Since, in consequence of a mean rate the unit will be completed in nine instructional hours, the desired comprehensive CSP will, when calibrated to mean rate, run for some 1900 hours spread over seven academic years.[4]

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[4] Whereas block, unit, and period reference to fixed amounts of time defined on mean acquisition rates, the lesson will be of variable duration. Each unit will contain at least one lesson and may contain several. Number of lessons for a specified unit will depend on unit skills characteristics and related pedagogical options.

The hierarchy of instructional time finds program at the apex, followed in descending order by level, unit, and lesson. It is useful also to formulate a skills hierarchy. Such a hierarchy also has program at its apex, but followed in descending order by skills complex, skills cluster, skills and subskills. Exemplars of proficiency hierarchies tend typically to reference to skills and subskills levels of a skills hierarchy and to lesson and unit levels of an instructional time hierarchy. Useful proficiency hierarchies for a comprehensive CSP probably will reference to broader ranges of instructional time and skills hierarchies.

The formulation of proficiency hierarchies--reflecting instructional path designs through CSP—will not be attempted here. However, later more-complete responses to the domain specification problem for a comprehensive CSP will have to deal with this complex matter. Table 2 provides an instructional unit notation that might be used in consonance with skills notation, provided in Table 4, when formulating instructional paths.

Table 2.

Instructional Unit Notation for the CSP Blocks of Table 1

| Primary Year | Notation for Instructional Units | | | |
|---|---|---|---|---|
| 1st | 1A-10A | 1B-10B | | |
| 2nd | 11A-20A | 11B-20B | 11C-20C | |
| 3rd | 21A-30A | 21B-30B | 21C-30C | 21D-30D |
| 4th | 31A-40A | 31B-40B | 31C-40C | 31D-40D |
| 5th | 41A-50A | 41B-50B | 41C-50C | |
| 6th | 51A-60A | 51B-60B | 51C-60C | |
| 7th | 61A-70A | 61B-70B | | |

SKILLS OF A COMPREHENSIVE CSP

The program formulator who defines an educational domain more narrowly at the outset than the facts at hand warrant obviously errs. It is possible also to err in the other direction. If the formulator begins by feigning a colossal ignorance concerning the educational domain of the program, he will too long pore over irrelevant literature and too long entertain irrelevant ideas as facets of problem resolution.

Errors of the first kind might be expected to occur most often within the educational R&D community; those of the second kind when a portion of the scholarly community sets out to put the educational house in order. Let us look at the second kind of error first.

The first stage of the "Right to Read Targeted Research" is essentially an academically-based survey. "Right to Read Targeted Research" illustrates the second kind of error because the endeavor at the outset does not structure a reading skills domain much beyond identifying the skills complexes "decoding to speech" and "decoding to meaning." While even those involved in such efforts might agree that much more could be said with confidence concerning the nature of the domain, program formulators seem to have a working hypothesis that both effectiveness and efficiency of effort will best be insured by feigning colossal ignorance at the outset. Let no stone go unturned.

Swift portrayed the consequences of such an initial orientation well in Gulliver's Travels. Gulliver discovered an island whose entire production of feces and urine was stored in giant vats against the time when scholarly analysis would reveal its clues to creation and existence. Day by day the scholarly community fell further behind in this work, not because of the press of higher-priority work but because production grew at a faster rate than the community's ability to analyze production. The growing discrepancy between production and analysis inevitably created quite a stink about the island.

Errors of the first kind, while perhaps most frequent in an educational R&D setting, are easiest to illustrate using well-known examples supplied by the scholarly community. It is by now generally agreed that Hull (1943) appreciated that his learning model was a constrained one but that some others who referenced their work to Hull's model did not. The result was--throughout the late forties and early fifties--a good deal of narrow work involving narrow learning tasks and a few infrahuman species that purported to show how many species, including humans, learn many sorts of tasks.

If one says little about the educational tasks that an educational R&D program will address, then there will be little bounding of the work because many more tasks will prove tenably relevant at the outset than would be the case if one better specifies the task domain. If--advertantly or otherwise--one specifies the task domain too narrowly in relation to a societal need, then some relevant work will from the outset be declared out of bounds. If one treats initial domain specification as a hypothesis, then a tendency to overspecify should be perceived and remedied early in the effort. While similar correction might flow from underspecification, such correction is improbable when the work proceeds from the orientation of feigned colossal ignorance.

In rejecting colossal ignorance as a working hypothesis, we are not braver or more reckless than those who find the orientation attractive.

It is possible that we are not more knowledgeable either, although certainly smarter. For growing from a feigned colossal ignorance is exhausting and inefficient.

Yet omniscience is not a requirement; initial sophistication is not a precondition to the pursuit of terminal sophistication. One's views of the bounds and structure of domain can be viewed initially as hypotheses. We do not advocate that the magnitude of an inductive leap to any such hypothesis should be of a different order of magnitude than that to any other hypothesis. The goal, rather, is to narrow the domain consonant with the information at hand. An illustration of how this might be done can be supplied for concept learning.

Two recent papers (Follettie, 1971a, 1971b) structure the classroom concept learning requirements for primary education well enough to clarify that these requirements bear little relation to those typically of interest to individuals who publish in the scholarly literature. The "concept learning literature" for the most part features concept learning as a problem in sleuthing. Classroom concept learning typically will be just the opposite at the primary level. It is of interest that the discovery concept learning task that beguiles scholars is no more general than the guided concept learning task that is most apt to the primary classroom. Both are special cases. Yet if one embarks on a literature search at the level of concept learning, most of the items retrieved will deal with the special case of discovery concept learning that we like to entertain college sophomores with. Whatever truths such a literature may reveal, these probably afford scant information useful to structuring classroom concept learning tasks that take the child through already-charted waters. To feign colossal ignorance in such a case is to risk both wasting time searching irrelevant literatures and then to compound that error by mimicking the literature's research, particularly with regard to learning tasks. Brute strength is no substitute for discrimination.

Table 3 names the skills complexes that, cumulatively, are believed to exhaust the domain of a comprehensive CSP. The set of skills complexes reflects a general view that communication is interactive, featuring event sequences that require an individual alternatively to receive and transmit, with both reception and transmission contents contingent on prior events in the sequence. No response modality that may have a role to play--e.g., visual, aural, kinesthetic--is ruled out.

Table 3.

Names of Skills Complexes for a Comprehensive CSP

| Complex | Complex Name |
|---|---|
| A | Word-Sentence Orthographic Skills |
| B | Word-Sentence Meaning Skills |
| C | Multisentence Meaning Skills |
| D | Transmission Skills |
| E | Interactive Skills |
| F | Understanding & Evaluating the Media |

More information exists concerning the skills of Skills Complex A than does for the skills of the other complexes. In part for this reason, the skills outline to be presented for Complex A is more definitive than are those presented for the other complexes. That the outline to be presented for Skills Complex B is somewhat less definitive reflects both greater ignorance and less effort. Although Complexes C-F are characterized by even-greater ignorance, their abbreviated outlines reflect the operation of laziness more than that of ignorance.

Some might inquire why laziness (or feigned ignorance) is allowed below when earlier remarks rule it out as an orientation to program formulation. The answer is that, in our hands, the tendency represents no more than a strategy of convenience. It is not advocated here that appreciable funds be allocated to any program until it is shown that the domains of such programs are sufficiently understood to insure that staff can be "guided" to the domain's literature and to the research and design implications of the domain in light of its characteristics. Most who have thought at all about Skills Complex C (Multisentence Meaning Skills), for example, know that a good deal more could be said about its skills than is said below. Only if this potential for specifying skills of the complex were better exploited would it be reasonable to allocate appreciable resources to an educational R&D effort addressing the complex. It should require much less to produce the domain information underlying effective formulation and costing of an apt consequent effort.

Others inclined to participate in formulating later responses to the comprehensive structuring of the CS domain should find the work increasingly challenging as they move across the inventoried skills complexes from A through F. Some of these responses will suggest how

the preliminary response should be elaborated; others will go beyond elaboration to propose specified modifications. On the basis of modest such efforts, measured in dollars, the goal of a comprehensive structuring of the CS domain should in time reach a point in explicitness and tenableness warranting the larger funding that underlies an extensive effort.

Table 4 outlines the skills of a comprehensive CSP--rather definitively for Skills Complexes A and B, almost not at all for the other skills complexes. The structure provided is of the first-approximation type; its evolution into a more-definitive reflection of the CS domain appears inevitable. The primary audience for Table 4 consists of individuals who--due to inclination or the press of other duties--will not cast the first stone but have an appreciable tendency to cast a second.

Table 4.

Outline of a Comprehensive CSP, by Complex, Cluster, and Skill

SKILLS COMPLEX A: WORD-SENTENCE ORTHOGRAPHIC SKILLS

Cluster A1: Decoding Written Words & Sentences to Speech[a]

Skill A11: Correspondences

For all letter-sound correspondences, associatively learned, recall the letter when the sound is presented and vice versa.

Skill A12: Pronunciation

For all program words and word elements presented in written form, recall the pronunciation response, associatively learned.

Skill A13: Segmentation

For all program rule words and word elements presented in written form, recall the segmentation response, associatively learned. (Induction of segmentation strategies built into training may be tested informally.)

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[a] Skills A11-A15 reflect associative effects for the major subskills trained. Skills A16-A19 reflect desired criterion skills involving generalization based on induction. The basis for generalizing from training items to novel test items stems both from characteristics of training exemplar sets for Skills A11-A15 and from training treatments that manipulate these sets to provide a basis for inducing rules and strategies--e.g., those of a segmentation routine.

Table 4 (cont.)

Skill A14: Blending

For all program rule words and word elements presented in a segmented form reflecting an appropriate segmentation strategy, recall the blending response, associatively learned.

Skill A15: Sentence Contouring

For all program sentences--consisting of program words and exemplarizing sentence forms of interest, e.g., declarative clause, wh-clause--presented in written form, recall the sentence contouring response, associatively learned.

Skill A16: Word Decoding in Sentence Context

Based on associative learning and induction from training underlying skills A11-A15, decode single novel words--defined on a generalization model--in written-form sentences otherwise consisting of program words to speech.

Skill A17: Sentence Decoding to Contour

Based on induction from training underlying Skill A15, decode written-form novel sentences consisting of program words to speech.

Skill A18: Context-Free Word Decoding

Based on induction from training underlying Skills A11-A14, decode context-free written-form novel words--defined on a generalization model--to speech.

Skill A19: Word-Sentence Decoding

Based on induction from training underlying Skills A11-A15, decode written-form novel sentences consisting of novel words--defined on a generalization model--to speech. (This skill reflects what typically is signified by oral reading.)

Cluster A2: Decoding Speech to Written Words and Sentences[b]

Skill A21: Spelling Pronounced Program Words

For all program words presented in pronounced form, recall the spelling response, associatively learned.

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[b] Contemplated "written" construction responses will employ letter tiles for spelling and word and punctuation tiles for punctuation. Cluster A3 addresses writing skills. Oral and tile-referenced responses will antedate writing skills.

Table 4 (cont.)

Skill A22: Spelling Segmented Program Rule Words

For all program rule words presented in segmented spoken form, recall the spelling response, associatively learned.

Skill A23: Punctuating Program Sentences

For all program sentences presented either in spoken form or unpunctuated written form, recall the punctuation, associatively learned.

Skill A24: Spelling Novel Words

Based on induction from training underlying Skills A11-A14 and Skills A21-A22, decode spoken-form novel rule words--defined on a generalization model--to spelled form.

Skill A25: Punctuating Novel Sentences

Based on induction from training underlying Skills A15 and A23, punctuate novel sentences consisting of program words when these sentences are presented either in spoken form or in unpunctuated written form.

Cluster A3: The Writing of Decoded Speech

Skill A31: Print-Writing Program Items[c]

Based on appropriate prerequisite skills, print-write program words and sentences presented in printed written form.

Skill A32: Handwriting Program Items

Based on appropriate prerequisite skills, handwrite program words and sentences presented in handwritten form.

Skill A33: Print-Writing Novel Handwritten Items

Print-write novel rule words and sentences presented in handwritten form.

Skill A34: Handwriting Novel Print-Written Items

Handwrite novel rule words and sentences presented in print-written form.

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[c] Numbers ending in zero--e.g., A10, A20, A30--are reserved for prerequisite skills.

Table 4 (cont.)

Cluster A4: Speeding Word-Sentence Orthographic Skills[d,e]

Skill A41: Speeding Print-to-Speech Decoding (Reading Speed)

Skill A42: Speeding Speech-to-Print Decoding (Spelling Speed)

Skill A43: Speeding Writing Responses (Writing Speed)

SKILLS COMPLEX B: WORD-SENTENCE MEANING SKILLS

Cluster B1: Word Formation Skills (Syntax 1)[f]

Skill B11: Form-Class Conceptual Skills

Representative Tasks: Learn form-class concepts in base sentence context; classify program words into form-classes; induce form-class of novel words in base-sentence context.

Skill B12: Base-Sentence Skills

Representative Tasks: Learn significance of program base-sentence forms employing program words. Learn significance of base-sentence forms extended to deal with declension, conjugation, tense, and other elements of common syntactic patterns.

Skill B13: Deregularization of Irregular Verbs

Representative Tasks: Learn the conjugations of irregular verbs (commonly regularly conjugated, through overgeneralization, by the young). Learn other modifications of incipient syntax that bring it into conformity with language system characteristics.

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d While Cluster A4 skills can probably be usefully characterized for preliminary purposes, these skills reflect real rather than feigned ignorance.

e For most children, response speed functions will be negatively accelerated, increasing with increasing training in Clusters A1-A3 skills. Where this is not so or where rate of increase projects asymptote at less than a criterion value, then Cluster A4 training probably will be indicated.

f Domains of Cluster B1 skills depend on concept-learning requirements of Cluster B3. These domains are not determined simply by consideration of linguistics qua linguistics.

Table 4 (cont.)

Skill B14: Compound-Word Building

Representative Tasks: Learn compound-word building rules; build compound words from program words; interpret novel compound words.

Skill B15: Form-Class Transformation

Representative Tasks: Learn rules which transform program words having specified form-class designations into words having other form-class designations; learn the significance of the morphologically more-complex form-class concepts thus reached.

Cluster B2: Other Linguistic Skills (Syntax 2)[g]

Skill B21: Word-Phrase Correspondences

Representative Task: Learn rules defining equivalence relations holding between certain morphological units (e.g., leg's) and phrase representations of the unit (e.g., of the leg).

Skill B22: Noun-Noun Phrase Patterns

Representative Task: Learn the significance of common noun-noun phrase patterns reflected in the inventory of linguistic names of concepts treated under Cluster B3. (An adequate linguistic treatment of technical noun phrases involving noun-noun modification remains to be devised.)

Skill B23: Single-Clause Correspondences

Representative Task: Learn rules defining equivalence relations holding between common single-clause constructions (e.g., active-passive pairs).

Skill B24: Sentence-Building Skills

Representative Tasks: Learn the significance of common intrasentence elements that connect clauses; learn rules for building multiclause sentences; learn the significance of linguistic representations of common definitional forms.

Cluster B3: Word-Phrase Comprehension Skills[h]

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[g] Footnote f also applies to Cluster B2 skills.

[h] These skills are more-definitively described in two recent papers (Follettie, 1971a, 1971b).

Table 4 (cont.)

Skill B31: Real-World Referenced Concept Learning

Representative Task: Based on language-guided exemplarization of real-world concepts using real-world exemplars, induce the domain of the concept.

Skill B32: 2D-Referenced Concept Learning

Representative Task: Based on language-guided 2D exemplarization of 3D and 4D concepts, induce the domain of the concept.

Skill B33: Language-Referenced Concept Learning

Representative Task: Based on linguistic descriptions showing how a real-world concept name is used linguistically and how it is defined on attributes having real-world significance, induce the domain of the concept.

SKILLS COMPLEX C: MULTISENTENCE MEANING SKILLS

Cluster C1: Logic & Supersyntax Skills[i]

Cluster C2: Multisentence-Selection Comprehension Skills

SKILLS COMPLEX D: TRANSMISSION SKILLS[j]

Cluster D1: Oral Composition Skills

Cluster D2: Written Composition Skills

SKILLS COMPLEX E: INTERACTIVE SKILLS

Cluster E1: Questioning & Answering Skills

Cluster E2: Debating Skills

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[i] The domains of Cluster C1 skills depend on information-processing requirements of Cluster C2. These domains are not determined simply by consideration of logic qua logic or linguistics qua linguistics.

[j] That more was not said about Complex D skills is more a function of laziness than of ignorance.

Table 4 (cont.)
SKILLS COMPLEX F: UNDERSTANDING & EVALUATING THE MEDIA[k]

Cluster F1: Evaluating the Media

Cluster F2: Interpreting Specified Media in Light of Known Biases

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k

Consumer education might take up biases in advertising; civics, biases in official pronouncements; CS would deal only with those biases that creep into the communications media.

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